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FIGURE 1

CCTTCCCTGCTGTAAGATTCAACATTTTAAATCAGTTAAATACTTTGTGCTCCTCTGCTCTCCATCAGAAAGTAATACATAAGAA
 30 M H Y F G V L A A L S V F M I I A C L T R G K P L E N W K K
 ATGCATTATTTGGAGTATTAGCTGCACCTGCTGTGTTTCAATATCATTCCTGCTGACAAAGAGCGAAGCCTTTGGAAAACCTGGAAAAG
 60 L P V M E E S D A F F H D P G E V E H D T H F D F K S F L E
 CTACCAGTTATGGAGAGTCTGATGCTTTCATGATCCTGGGAGTGGAAACATGACACCCCACTTTGACTTTAAATCTTTCTTGGAG
 90 N M K T D L L R S L N L S R V P S Q V K T K E E P P Q F M I
 AATATGAAGACAGATTACTAAGAAGTCTGMAATTATCAAGGTCCCTCACAAGTGAAGACCAAGAGAGCCACACAGTTCATGATT
 120 D L Y N R Y T A D K S S I P A S N I V R S F S T E D V V S L
 GATTATACAACAGATATACAGCGGACAAGTCTCCATCCCTGCATCCCAACATCGTGAGGAGCTTCAGCACTGAAGATGTTGTTCTTTA
 150 I S P E E H S F Q K H I L L F N I S I P R Y E E V T R A E L
 ATTCACCAGNAGAACACTCATTTCAGAAACACATCTTGCTCTTCAACATCTCTATTCCACGATATGAGGAAGTCAACAGAGCTGAACCTG
 180 R I F I S C H K E V G S P S R L E G N M V I Y D V L D G D H
 AGAATCTTTATCTCCTGTCAAGGAAGTTGGGTCTCCCTCCAGACTGGAAGGCACATGGTCATTTATGATGTTCTAGATGGAGACCNT
 210 W E N K E S T K S L L V S H S I Q D C G W E M F E V S S A V
 TGGGAAAACAAGAAAGTACCAATCTTTACTTGCTCTCACAGTATTCAGGACTGTGGCTGGGAGATGTTGAGGTGTCCAGCGCTGTG
 240 K R W V K A D K M K T K N K L E V V I E S K D L S G F P C G
 AAAAGATGGGTCAAGGCAGACAGATGAAGACTAAACAAGCTAGAGGTTGTTATAGAGAGTAAGGATCTGAGTGGTTTTCCTTGTGGG

FIGURE 1 (CONTINUED)

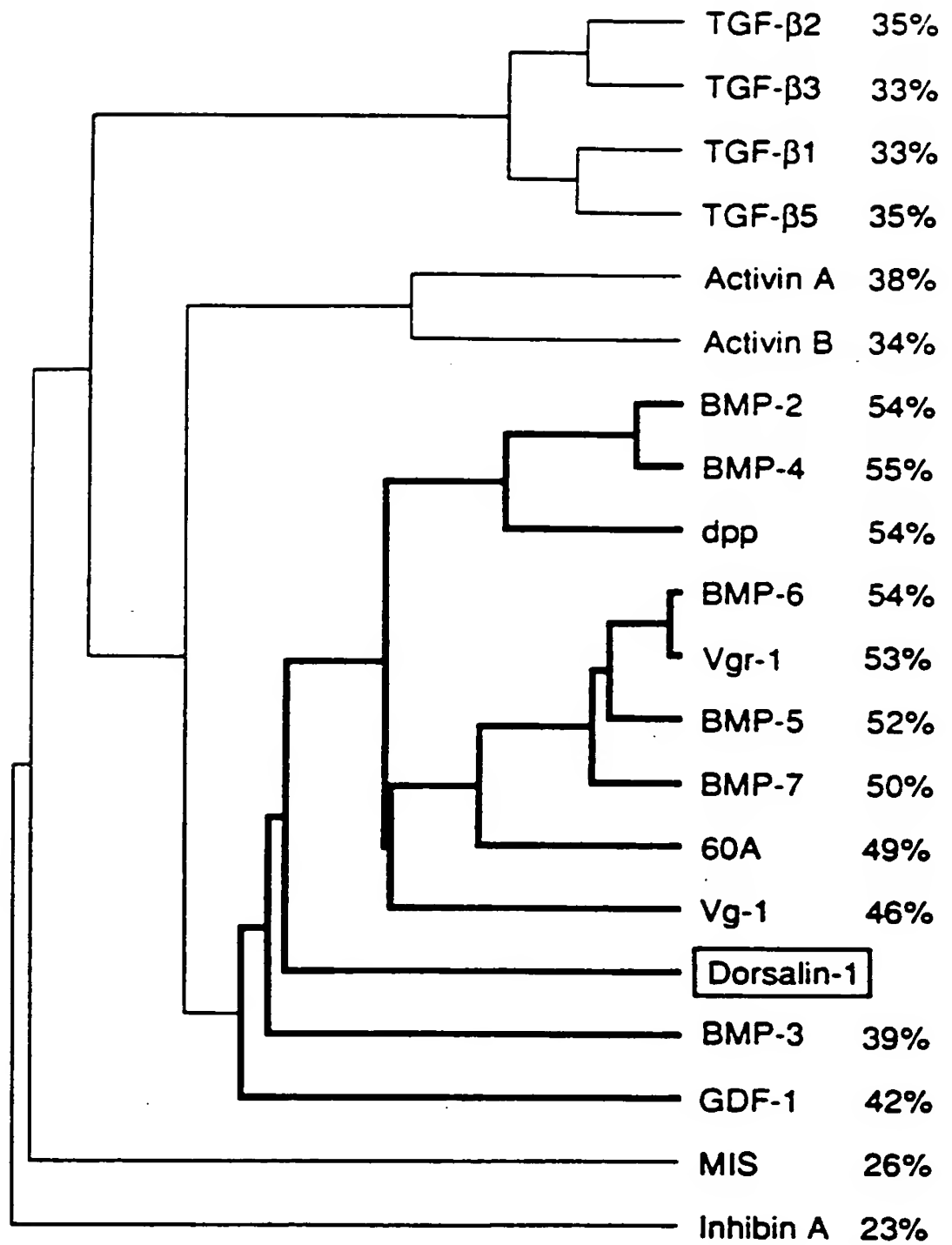
K L D I T V T H D T K N L P L L I V F S N D R S N G T K E T 270
 AAGCTGATATTACTGTTACTCATGACACTAAATCTGCCCCCTATTATAGTGTCTCCAATGATCGCAGCAATGGACAAAGAGACC
 K V E L R E M I V H E Q E S V L N K L G K N D S S E E E Q 300
 AAGTGGAGCTCCGGAGATGATTGTTCAAGACAAGAAAGTGTGCTAAACAATTAGGAAGAACGACTCTTCATCTCTGAAGAAGAACAG
 R E E K A I A R P R Q H S S R S K R S I G A N H C R R T S L 330
 AGAGAAAGAAAGCCATTGCTAGGCCCGCTCAGCATTCCTCCAGAAAGAGAGCATAGGAGCAAAACCACCTGTCCGAGAACGTCACCTC
 H V N F K E I G W D S W I I A P K D Y E A F E C K G G C F F 360
 CATGTGAACCTTTAAAGAAATAGTTGGGATTCTTGGATCATTCGACCCCAAGATTATGAGGCTTTTGAGTGTAAAGGAGGTTCCTTCTTC
 P L T D N V T P T K H A I V Q T L V H L Q N P K K A S K A C 390
 CCCCTCACAGATAATGTTACGCCCAACCAACATGCTATTGTCCAGACTCTGGTGATCTCCAAACCCCAAGAAAGCTTCCAAGGCCTGT
 C V P T K L D A I S I L Y K D D A G V P T L I Y N Y E G M K 420
 TGTGTTCCAACATAATTGGATGCAATCTCTATTCTTTATAAGGATGATGCTGGTGTGCCCACTTTTGATATATACTATGAAGGGATGAAA
 V A E C G C R 427
 GTGGCAGAAATGTGGCTGCAGGTAGTATATGCTGAATATCTAAGAATATACTCTTTTCTGCTGTCTGTGAACTGTACATTAGTAGTGCAA
 ATGAAATCCCTTGCAACAAAGGTTTGGAGCACGGCATGGGCTGTTGTTGTTGCTGCTTTTAAAGGAAAGATGGCATTAAAGAAATGGC
 AATCACTGTAAATACCCCTGCATTATATACCATTAATTAACACTTTGTGAGATTGAAAAAATAAAAAAATAAAAAA

FIGURE 2A

DORSALIN-1	..SVLNKLGKNDSSSEEEQREKAIARPRQHSSRSKR^SIGANH	RRRTS	LHVNF	-KEIGW	D	SWIIAPKDYEA	FEC	KGGCF	
BMP-2	..EHSWSQIRPLLVTFGHDGKGHPLHKREKQAKHKQRRLKSS	GKRHP	LYVDF	-SDV	GWND	WIIAPPGYHA	FYCH	HGECF	
DPP	..DDGRHKARSIR^DVSGGEGGGRNRHARRPTRRKNHDDT	GRRHS	LYVDF	-SDV	GWDD	WIIAPPLGYDA	YCH	HGKCP	
BMP-6	..RTTR^SASSRRRQSSRNRSTQSQDVARSASDYNSELKTA	GKRHE	LYVSF	-QDL	GWQD	WIIAPKGYA	ANYC	DGECS	
VG-1	..ECKDIQTFLYTSLLTVTLNPLRCKRPRRRRSYSKLPFTASNI	GKKRH	LYVEF	-KDV	GWQN	WIIAPQGYMA	ANYC	YGECP	
ACTIVIN-A	..GADEEKEQSHRPFLMLQARQSEDPHRRRRR^GLECDGKVNIG	GCKKQ	FFVSF	-KDI	GWND	WIIAPSGYMA	ANYC	YGECP	
TGF-BETA-1	..GMNRPFLLLMATPLERAQHLQSSRRRR^ALDTNYCFSSTEKN	GCVRQ	LYIDF	ERKDL	GMK-WIHEP	KGYMANF	QLGFCP	*	
DORSALIN-1	FPLTDNVTP	TIKHA	IVQTLVHL	Q-----	NPKKAS	KACCVPTKL	DAISILY	KDDAGVPTLIYNYEGMKVA	ECGCR
BMP-2	EPLADHLN	STINHA	IVQTLVNSV	-----	N.SKIP	KACCVPTKL	SAISMLYL	DENEKVLK-NYQDMVV	EGCGCR
DPP	EPLADHFN	STINHA	VQTLVNMN	-----	NP	GKVPKACCVPTQLDS	VAMLYLNDQSTVVLK-NYQDMVV	EGCGCR	
BMP-6	EPLNAHNN	ATINHA	IVQTLVHLM	-----	NP	EYVPKPCCAPTKLNAISVLYFDDNSNVLK-KYRN	MVVVRACGCH		
VG-1	YPLTEILN	GSNHA	IQTLVHSI	-----	EP	EDIPLPCCVPTKMSPI	SMIFYDNNDNVVLR-HYEN	MVDECGCR	
ACTIVIN-A	SHIAGTSGSSLSFHS	STVINH	YMRMRGHS	PFANL	KSCCVPTKL	RPHSM	LYDDGQNI	IKK-DIQNM	IVEECGCS
TGF-BETA-1	-----	YIWSL	DTQYSKVLALY	-NQHN	PGASAA	CCVPPQAL	EPLPIV	LYY-VGRKPKVE-QLSN	MIVRSCKCS

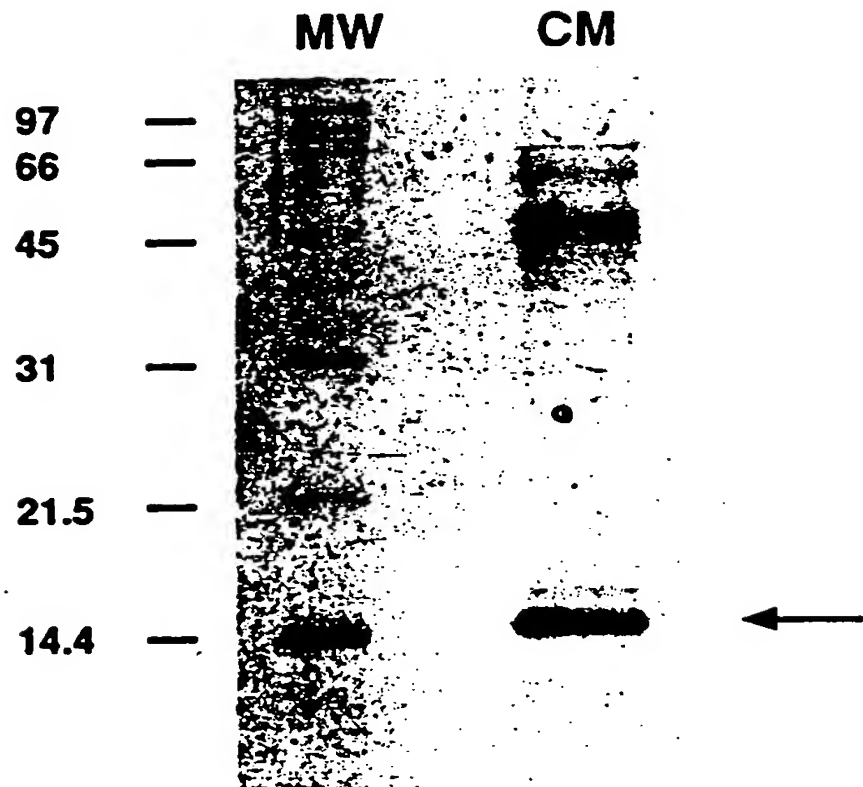
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FIGURE 2B



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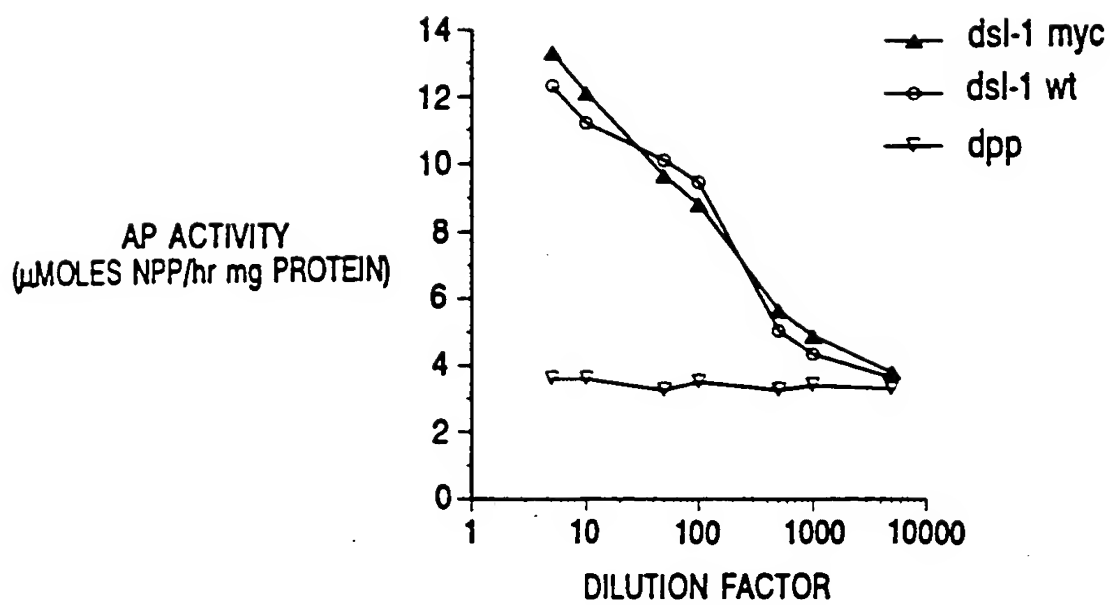
FIGURE 3A



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FIGURE 3B



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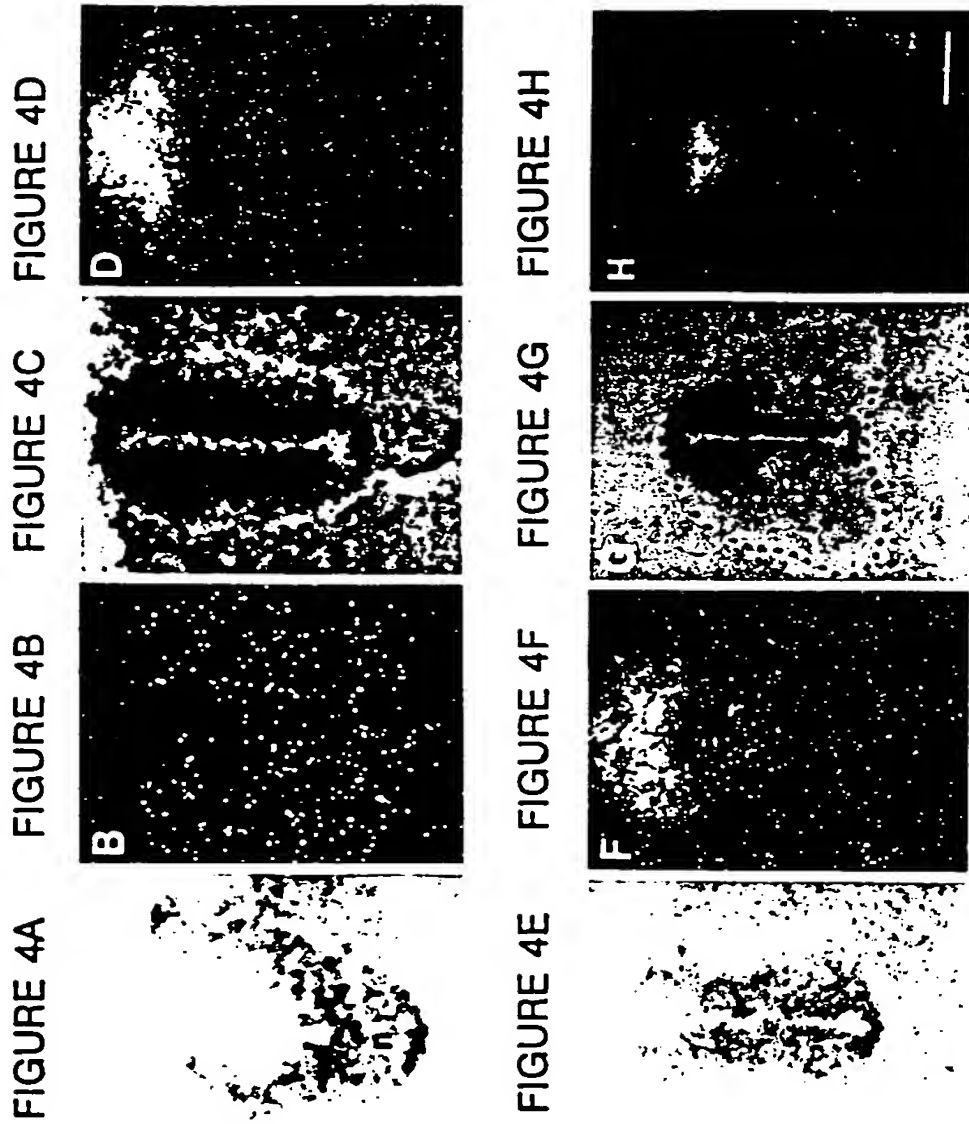


FIGURE 5A



FIGURE 5B

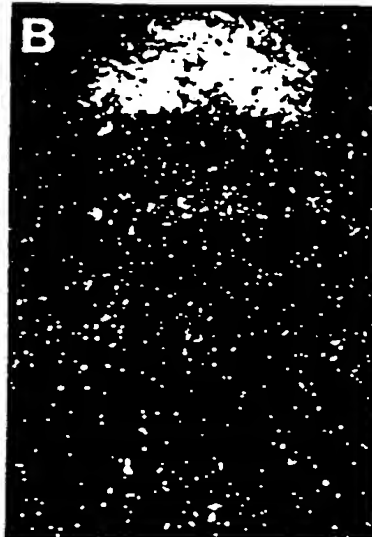


FIGURE 5C

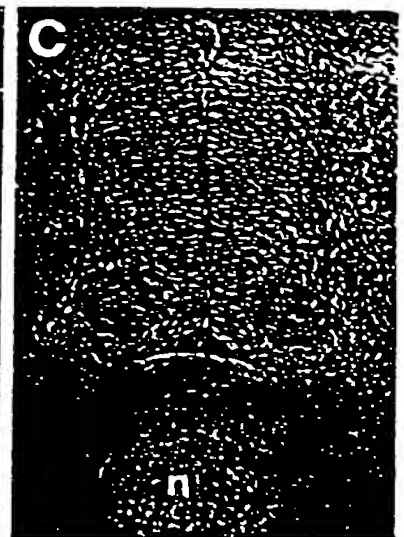


FIGURE 5D



FIGURE 5E

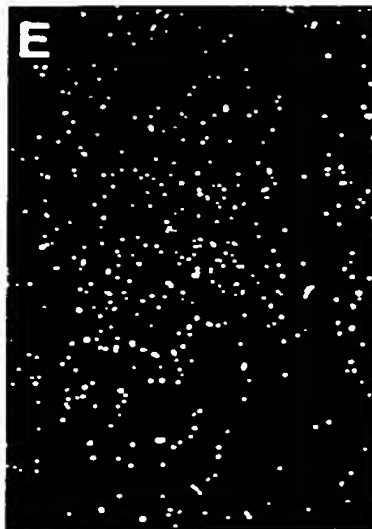


FIGURE 5F

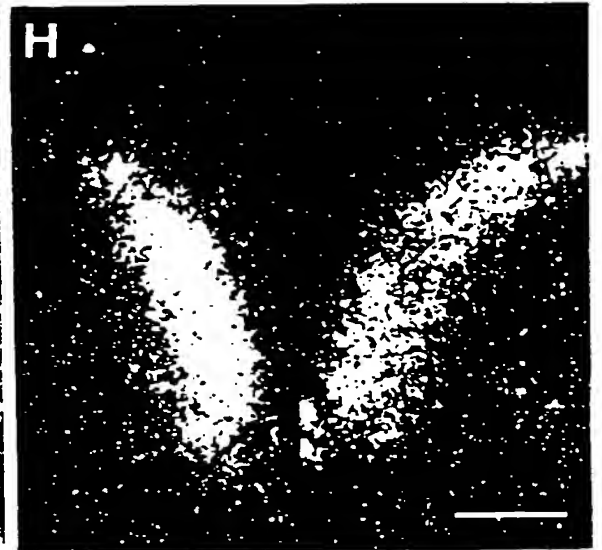


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FIGURE 5G



FIGURE 5H



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FIGURE 6A

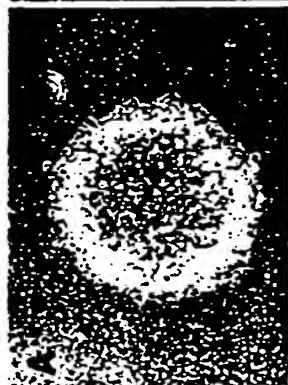


FIGURE 6B



FIGURE 6C



FIGURE 6D



FIGURE 6E



FIGURE 6F



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FIGURE 6G

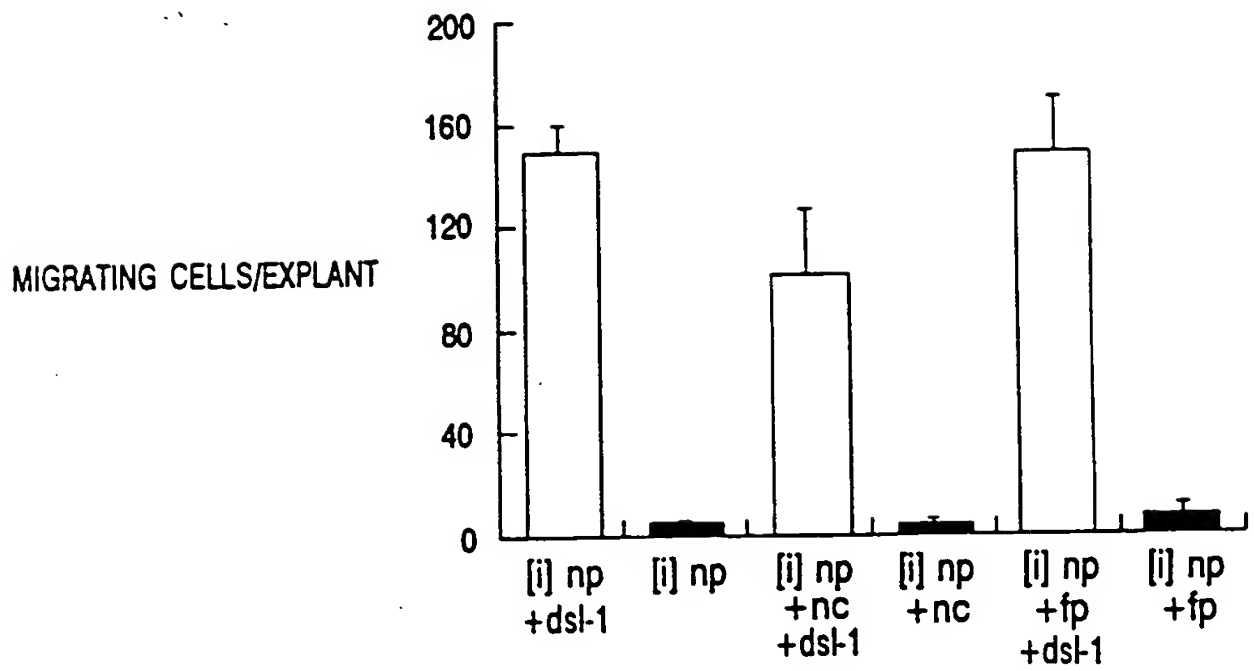


FIGURE 7A FIGURE 7B FIGURE 7C



FIGURE 7D FIGURE 7E FIGURE 7F



FIGURE 7G



G

FIGURE 7H



H

FIGURE 7I



I

FIGURE 7J



J

FIGURE 7K



K

FIGURE 7L



L

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FIGURE 8A

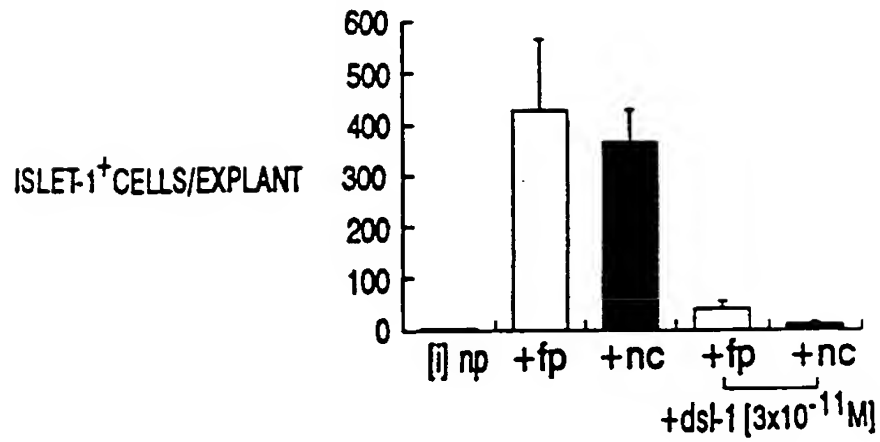


FIGURE 8B

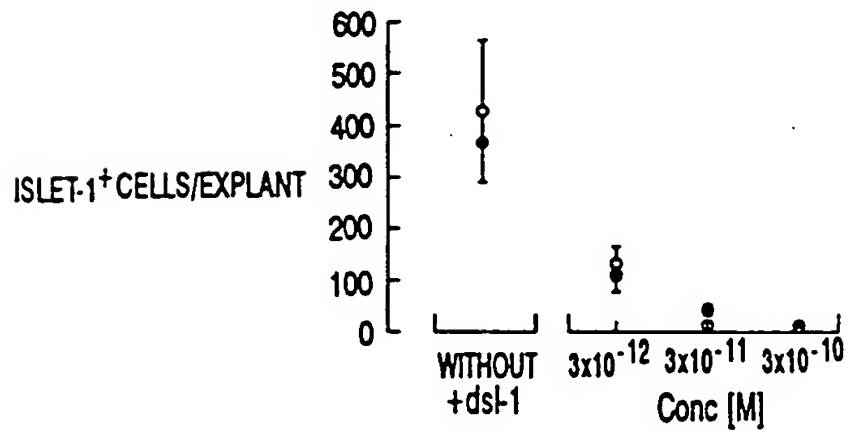
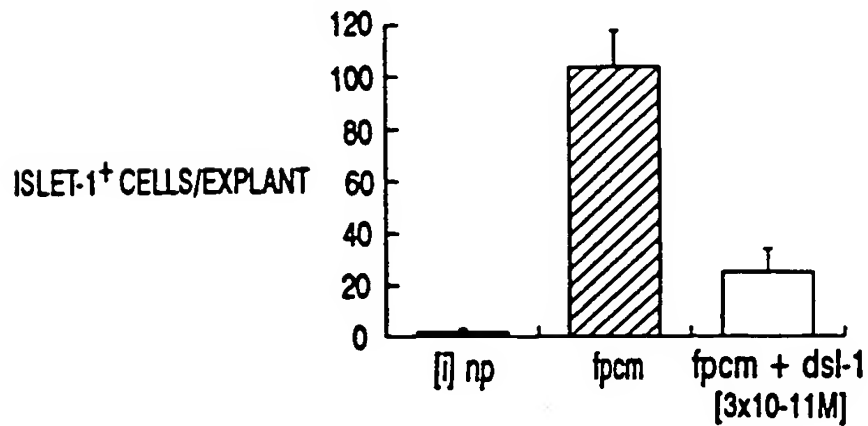


FIGURE 8C

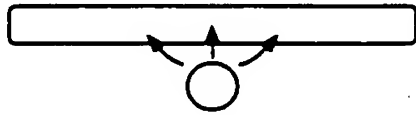


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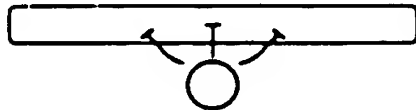
FIGURE 9A

A. ESTABLISHMENT OF *DORSALIN-1* EXPRESSION

- i) SIGNALS FROM THE NOTOCHORD SPECIFY THE VENTRAL FATE OF OVERLYING NEURAL PLATE CELLS



- ii) SIGNALS FROM THE NOTOCHORD ACT ON OVERLYING NEURAL PLATE CELLS TO PREVENT SUBSEQUENT *DSL-1* EXPRESSION



- iii) RESTRICTED DORSAL EXPRESSION OF *DSL-1* OCCURS AFTER NEURAL TUBE CLOSURE

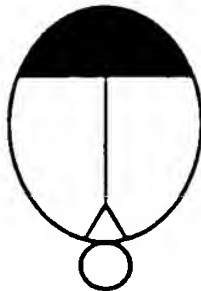
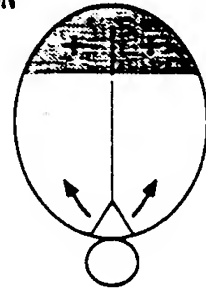


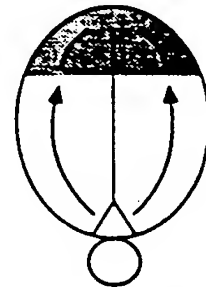
FIGURE 9B

B. POSSIBLE FUNCTIONS OF *DORSALIN-1*

- i) PROMOTION OF DORSAL CELL TYPE DIFFERENTIATION



- ii) LIMITING THE SPREAD OF VENTRAL SIGNALS



- iii) DIFFUSION OF *DSL-1* CONTROLS CELL PATTERN MORE VENTRALLY

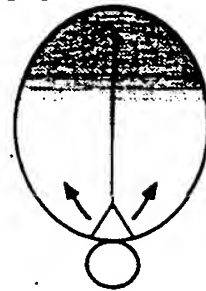


FIGURE 10

	1		80
B29	MHYFGLAALSVENIIACLTRGKPLENWKLPVMEESDAFFHDPGEVEHDTHEDFKSFLENMKTDLRLSLNLSRVP SQVK		
B29m		
	81		160
B29	TKEPPQFMIDLYNRYTADKSSIPASNIVRSFSTEDVVSLISPEEHSFQKHILLFNISIPRYEEVTRAEIRIFISCHKEV		
B29m		
	161		240
B29	GSPSRLEGNMVIYDVL.DGDHWNENKESKSLVSHSIQDCGWEMFEVSSAVKRWVKADKMKTKNKLEVVIESKOLSGFPC		
B29mDVLEDSETNDQATGTTKTLVVSQDIRDEGWETLEVSSAVKRWVRADSTTNKNKLEVTVQSHRES...C		
	241		320
B29	GKLDITVTHDTKNLPLLI VFSNDRSNGTKETKVE.LREMIVHEQESVLNKLGNKNDSSSEEEQREEKAI...ARPRQHSSR		
B29m	DTLDISVPPGSKNLPFFV VFSNDRSNGTKETRLDLLKEMIGHEQETHLVKTAKNAYQGAGESQEEEGLDGYTAVGPLLAR		
	321		400
B29	SKRSIGA.NHCRRTSLHVNFEKEIGWDSWIIAPKDYEA FECKGCGFFPLTDNVTPTKHAIVQTLVHLQNP KKAKACCVPT		
B29m	RKRSTGASSHCQKTSLRVN FEDIGWDSWIIAPKEYDAYECKGCGFFPLADDVTPTKHAIVQTLVHLKFPTKV GKACCVPT		
	401		433
B29	KLDAISILYKDDAGVPTLIYNYEGHKVAECGCR		
B29m	KLSPISILYKDDMGVPTLKYHYEGMSVAECGCR		